

## Vestibulo-Ocular Reflex

Slow Phase

Fast Phase

Smooth Pursuit

### Slow Phase of VOR

- Head turns Right →
- Endolymph in the H. SCC moves left →
- In the right H.SCC the kinocilium bends towards utricle → EXCITATION OCCURS →
- Electrical discharge from right H.SCC →
- In the left H.SCC, the kinocilium bends away from the utricle → INHIBITION OCCURS →
- Impulse travels from Right Vestibular Nerve →
- Right Vestibular Nuclei → CROSSES OVER
- Left Pontine Paramedial Reticular Formation (PPRF) →
- Left Abducens Nuclei →
- Left Abducens Nerve →
- Pulls left lateral rectus & Inhibits left medial rectus (same time)
- Crosses over to the right through the medial longitudinal fasciculus to
- Right oculomotor Nuclei →
- Right oculomotor nerve →
- Pulls right medial rectus and inhibits right lateral rectus →
- Eyes Turn Left

### Fast Phase of VOR

**Refers to a saccade which are rapid voluntary eye movements from target to target to maintain a fast-moving object on the fovea through a descending contralateral pathway**

- Starts in the left frontal eye field of the cerebral cortex → CROSSES OVER
- Right PPRF →
- Right Abducens Nuclei →
- Right Abducens Nerve →
- Lateral rectus of right eye and crosses over to the left side via MLF →
- Left oculomotor nucleus →
- Left oculomotor nerve →
- Left medial rectus →
- Eyes back to center

### Smooth Pursuit of VOR

**Enables tracking of a slowly moving object and keeps image in fovea despite the movement of the object**

- Descending ipsilateral pathway begins in cerebral cortex →
- Ipsi PPRF →
- Abducens nerve →
- Lateral rectus →
- Oculomotor nerve → CROSSES OVER
- Lateral rectus on contra and medial rectus on ipsi
- This keeps eyes steady when following a moving target.